Performance Analysis Of Finite-Users Finite-Buffer Slotted ALOHA System In Flat Fading Channel Using Tagged User Approach

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Summary

Tagged user analysis (TUA) is a generic approximate method of analyzing multiple access protocols that decouples channel contention behavior from user queueing behavior enabling classical queueing theory to be directly applicable. In this paper, we extend TUA to incorporate flat fading channel and derive analytical expressions for system performance indices like throughput, average packet delay, blocking probability and queue length. Simulations back the analysis results. It is shown that for moderate number of active users, the simulation and analytical results have a very good match.